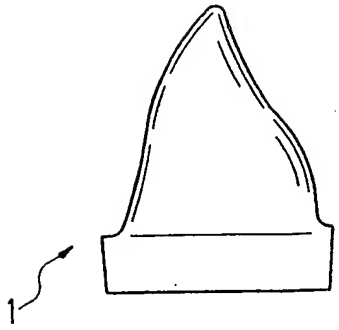


Fig. 1

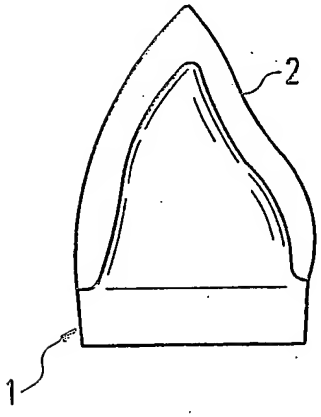


Fig. 2

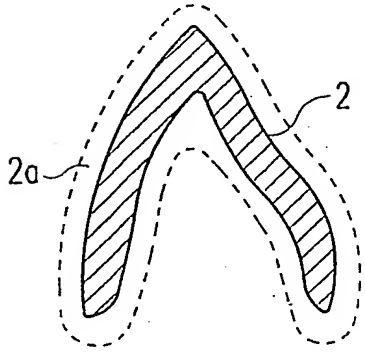


Fig. 3

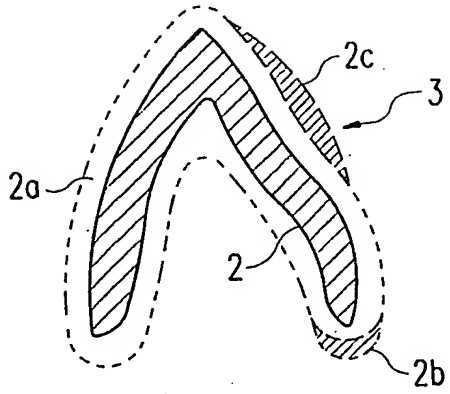


Fig. 4

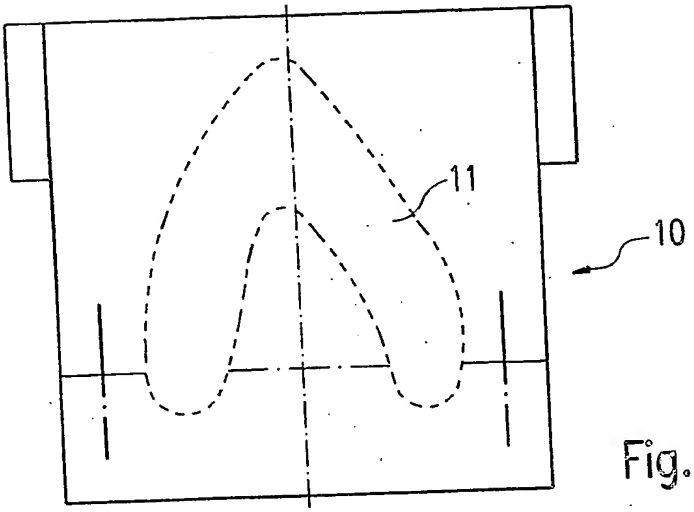


Fig. 5

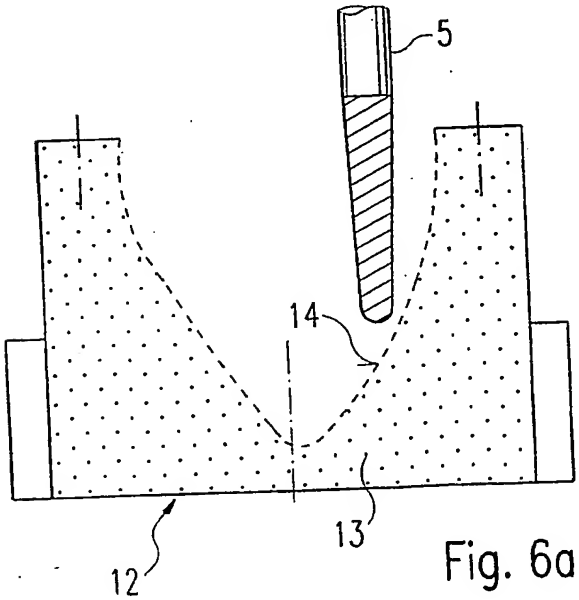


Fig. 6a

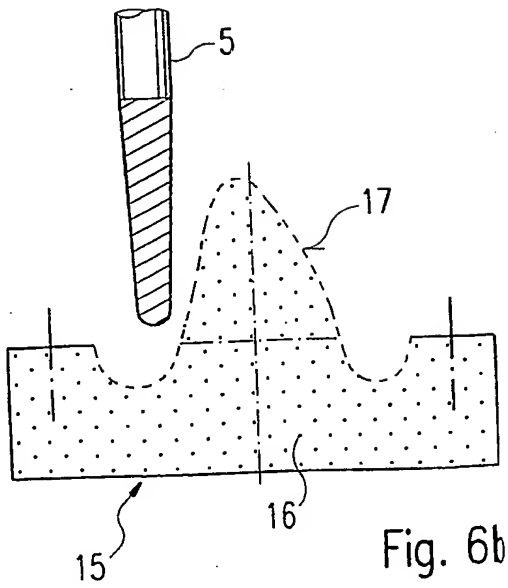


Fig. 6b

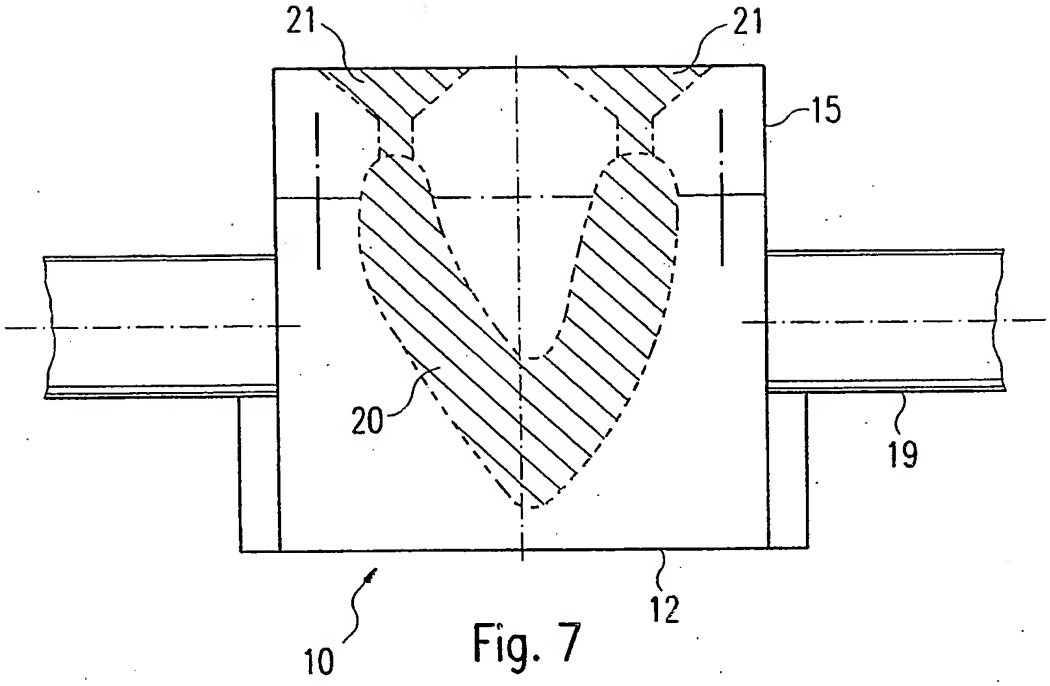


Fig. 7

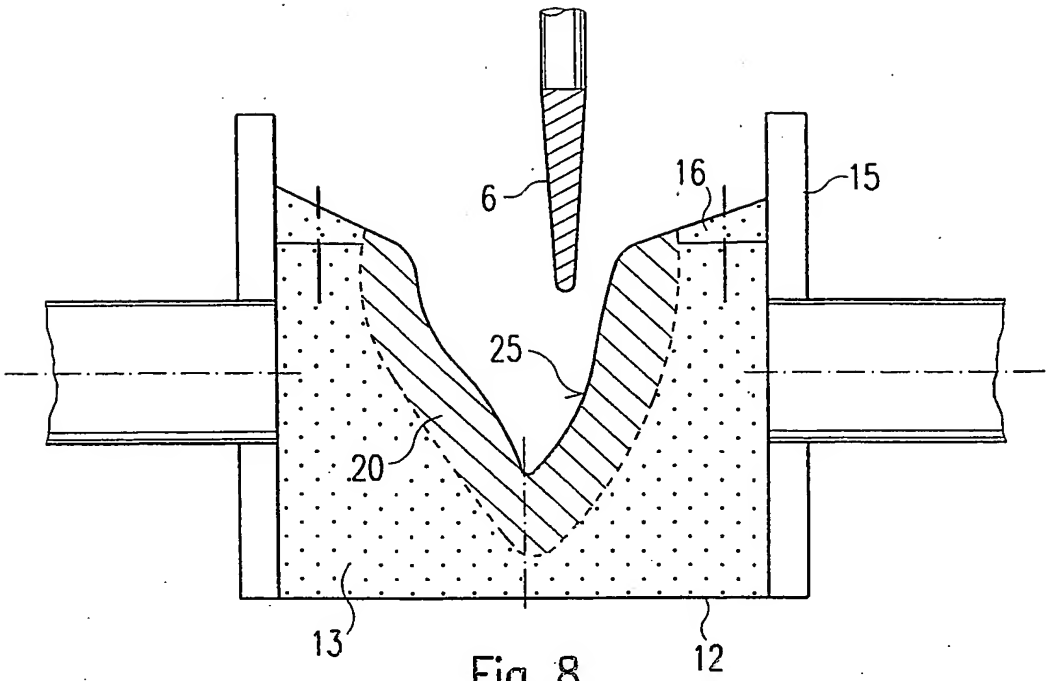


Fig. 8

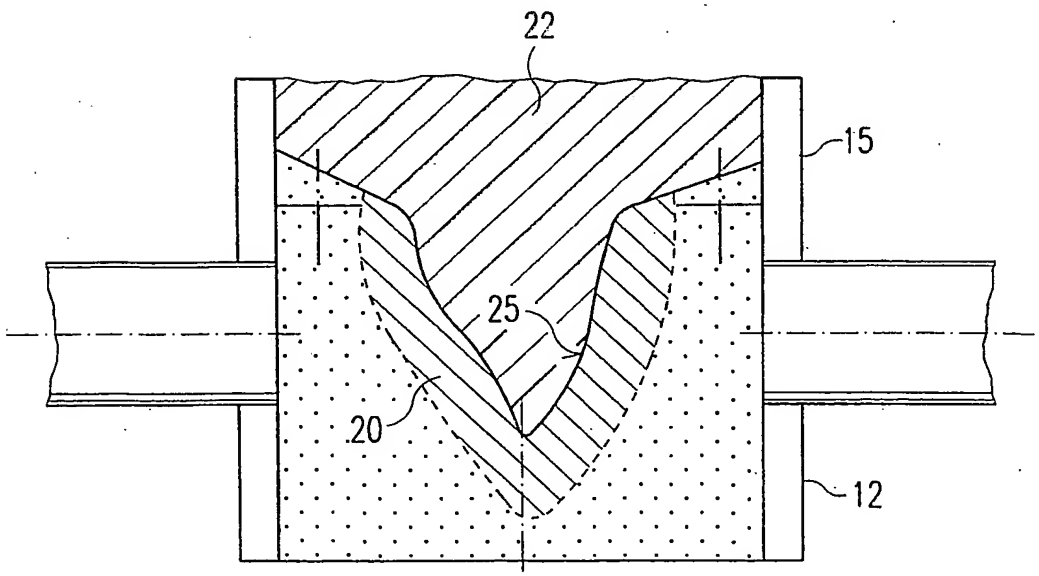


Fig. 9

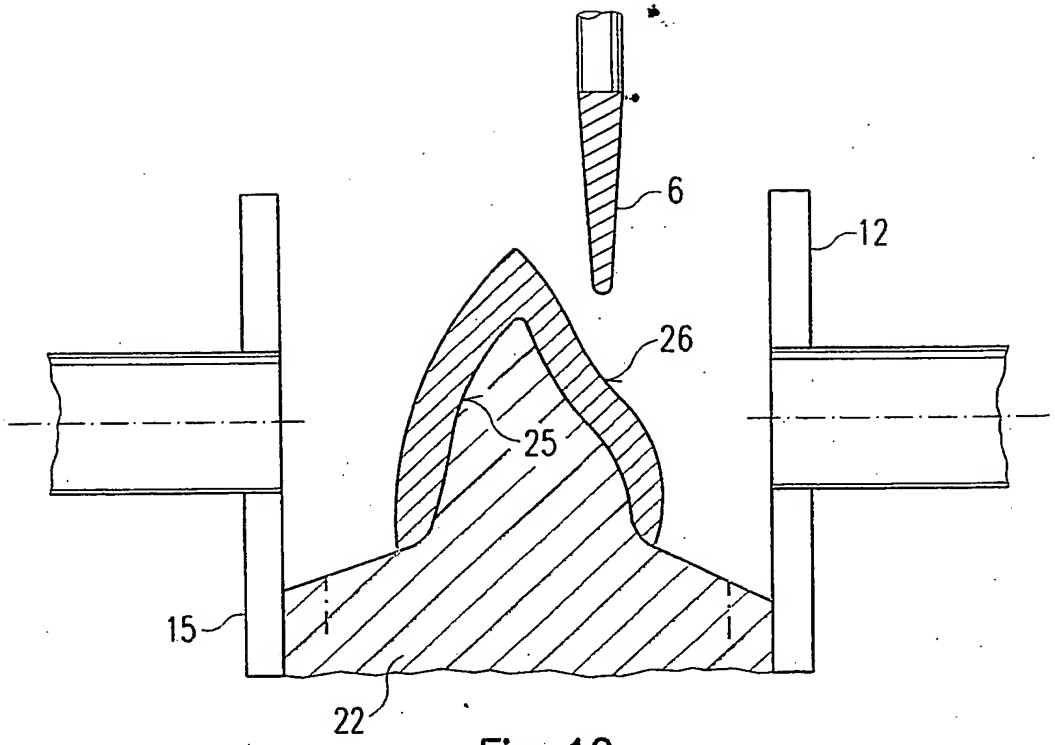


Fig. 10

| Produce individual gold cap in the classical gold casting method | Produce individual gold cap CAD-Casting-CAM |
|---|---|

| No. | Operational Group | Process | | | | No | Operational Group | Process | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Manual Work | Autmat. Run | PC Work | Machine Tool | | | Manuel Work | Automat Run | PC Work | Machine Tool |
| 1 | Preparatory operations | K | | | | 1 | Preparatory operations | K | | | |
| 2 | Deep draw foil cap | M | | | | 2 | Optically measure stump by scanning | | X | K | |
| 3 | Adapt foil cap to stump | M | | | | 3 | Automatic surface reconstruction | | X | K | |
| 4 | Insulate stump | K | | | | 4 | Construct crown cap CAD-3D | | | K | |
| 5 | Fix foil cap | M | | | | 5 | Automatically generate offset on CAD-3D model | | X | K | |
| 6 | Model crown in wax | L | | | | 6 | Automatically generate CAM-NC program for coquille | | | K | |
| 7 | Lacquer model | K | | | | 7 | Place coquille blank(s) in mounting bridge | K | | | |
| 8 | Prepare casting | M | | | | 8 | 5-axis mill coquille mould | | X | | X |
| 9 | Prepare muffle | M | | | | 9 | Automatically generate CAM-NC program for crown cap | | X | K | |
| 10 | Produce bedding mass slurry | M | | | | 10 | Remove finished coquille/coquille-halves from mounting bridge | K | | | |
| 11 | Fine bedding in | K | | | | 11 | Cast coquille with noble metal or Co Cr Mo-alloy | M | | | |
| 12 | Bedding in | M | | | | 12 | Reposition casting with coquille in mounting bridge | K | | | |
| 13 | Wax out muffle and pre-warm | | X | | | 13 | Mill out cavity side of the crown cap from the casting | | X | | X |
| 14 | Casting | K | | | | 14 | Backing embed cavity side | M | | | |
| 15 | Bedding out | M | | | | 15 | Mill occlusal side | | X | | X |
| 16 | Finish clean cast blank | M | | | | 16 | Release crown cap from bedding plastic | K | | | |
| 17 | Separate inlet channel | M | | | | 17 | If appropriate, slightly manually correct crown cap | K | | | |
| 18 | Work with the hand piece | L | | | | 18 | Blast crown cap | K | | | |
| 19 | Blast crown cap | K | | | | 19 | Clean crown cap and stump | K | | | |
| 20 | Clean crown cap and stump | K | | | | 20 | Final operations | K | | | |
| 21 | Final operations | K | | | | | | | | | |
| | | | | | | | | | | | |

Manual Work Time Duration Short (K) Medium (M) Long (L)

K M L

Fig. 11



10/549931